Using Descriptive Epidemiology Instead of Daily or Weekly Injury Reports

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Background for This Presentation

- Ford's Injury/ Illness Data System
  - → Electronic Medical Record
  - → Incident Investigation Module
  - → Health Data Analysis Module (HDA)
- HDA Launched with Great Reviews in 1994
  - → HDA Launched with 12 Months of Data
  - → Easy to Access with Rates by Job and Injury Type
- Less Enthusiasm A Year Later
  - → "Every week I look at HDA - it doesn't tell me much"

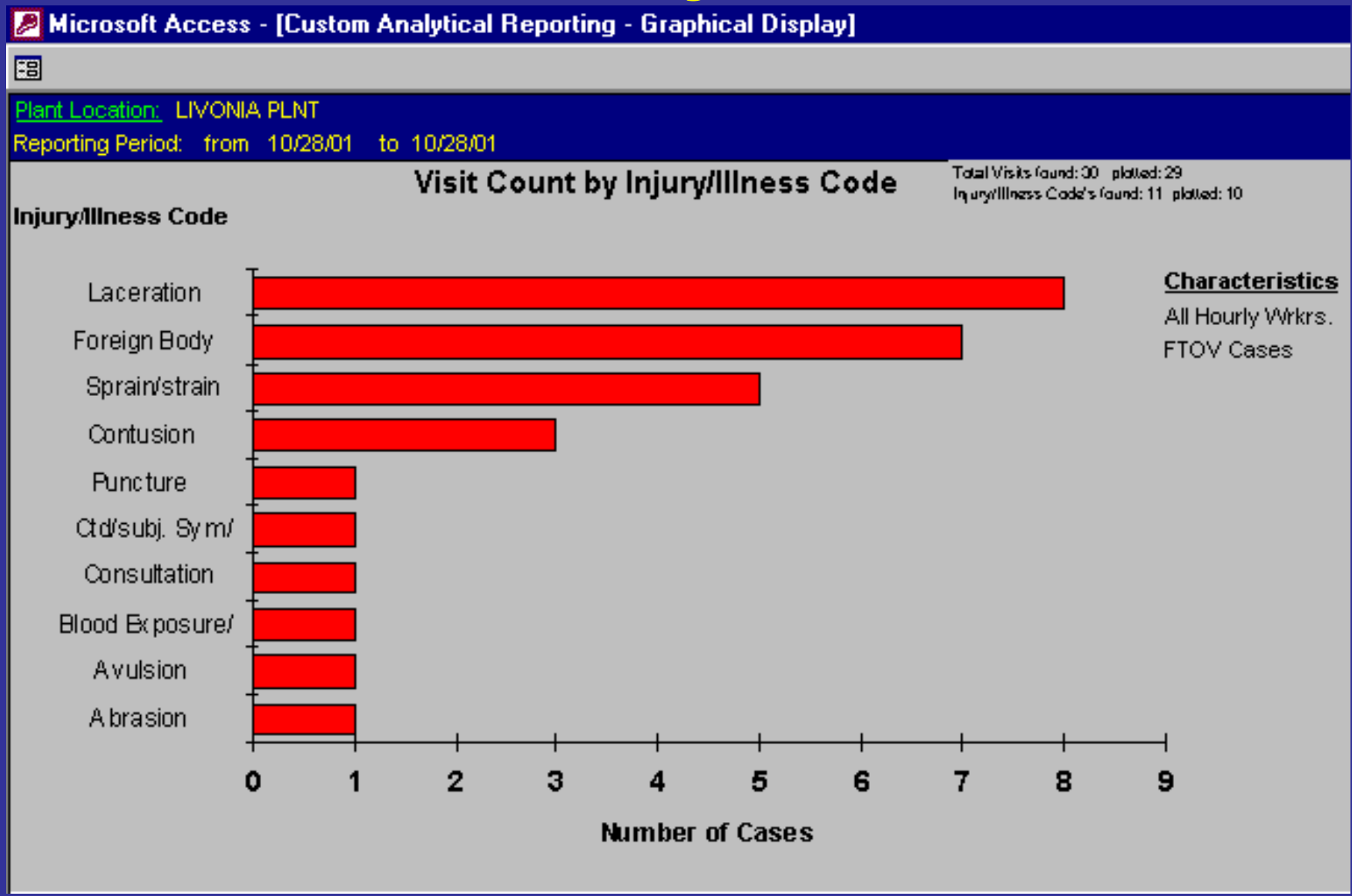
"Action-Oriented" Safety Processes

- Daily or Weekly Review of Injury Events
  - → Plant Operating Committee
  - → Action-Oriented Managers – "Just Do It"
- "Near Real Time" Reviews: Advantages
  - → Provides Regular Opportunities to Push Safety
  - → Conveys Plant Leadership's Interest in Safety
- "Near Real Time" Reviews: Disadvantages
  - → Presents a Limited View of the Data (Today's Crisis)
  - → Generates Instant Solutions (Daily or Weekly)

A Weekly Report

Weekly Injury / Illness Report	
10/22/2001 to 10/28/2001	
Injury / Illness Code	**Visit count**
ABRASION	1
AVULSION	1
BLOOD EXPOSURE/SPLASH	1
CONSULTATION	1
CONT/DERMATITIS/OT/ECZEMA	1
CONTUSION	3
FOREIGN BODY	7
LACERATION	8
PUNCTURE	1
SPRAIN/STRAIN	5
Total	29

A Weekly Chart



Reasons to Look Beyond Daily and Weekly Reports

- Human "PC"s Can Not Retain / Recall Daily or Weekly Data for Trend Analysis
  - → Trends in Common Events Can Go Unrecognized
  - → Clusters of Serious Events Can Be Missed, If Too Rare
- Small Numbers Issues
  - → Response to Each Incident as a Study of "1" Can Miss Target

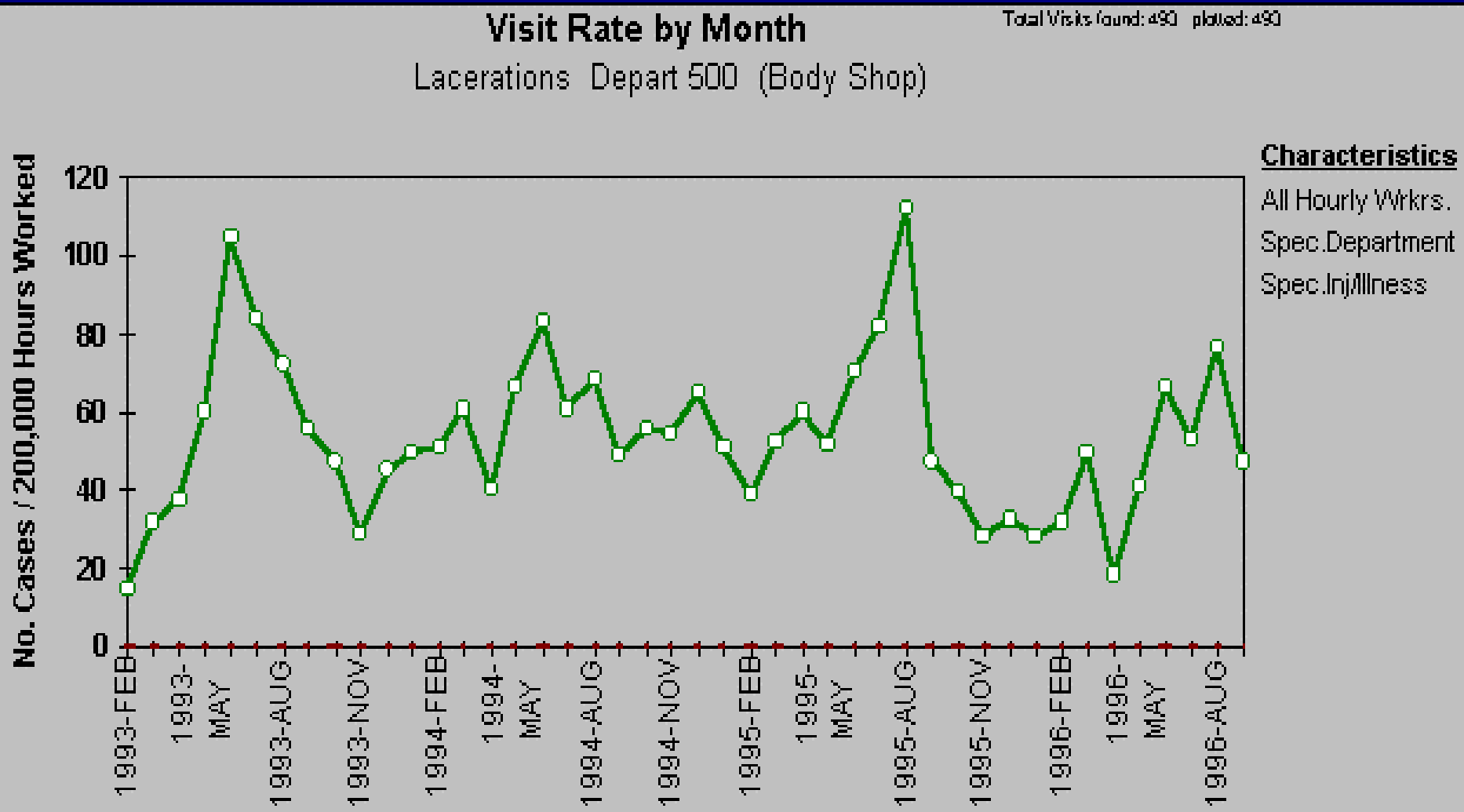
Trends in Common Events Can Go Unrecognized

- Pattern of Lacerations in the Body Shop
  (Sheet Metal assembled and welded)
- Seasonal Pattern Not Detected by Human PC Data Retrieval and Trend Analysis
- Further Study of Patterns Leads to Identification of Underlying Cause(s)

Observational Study Based on Shift Differences

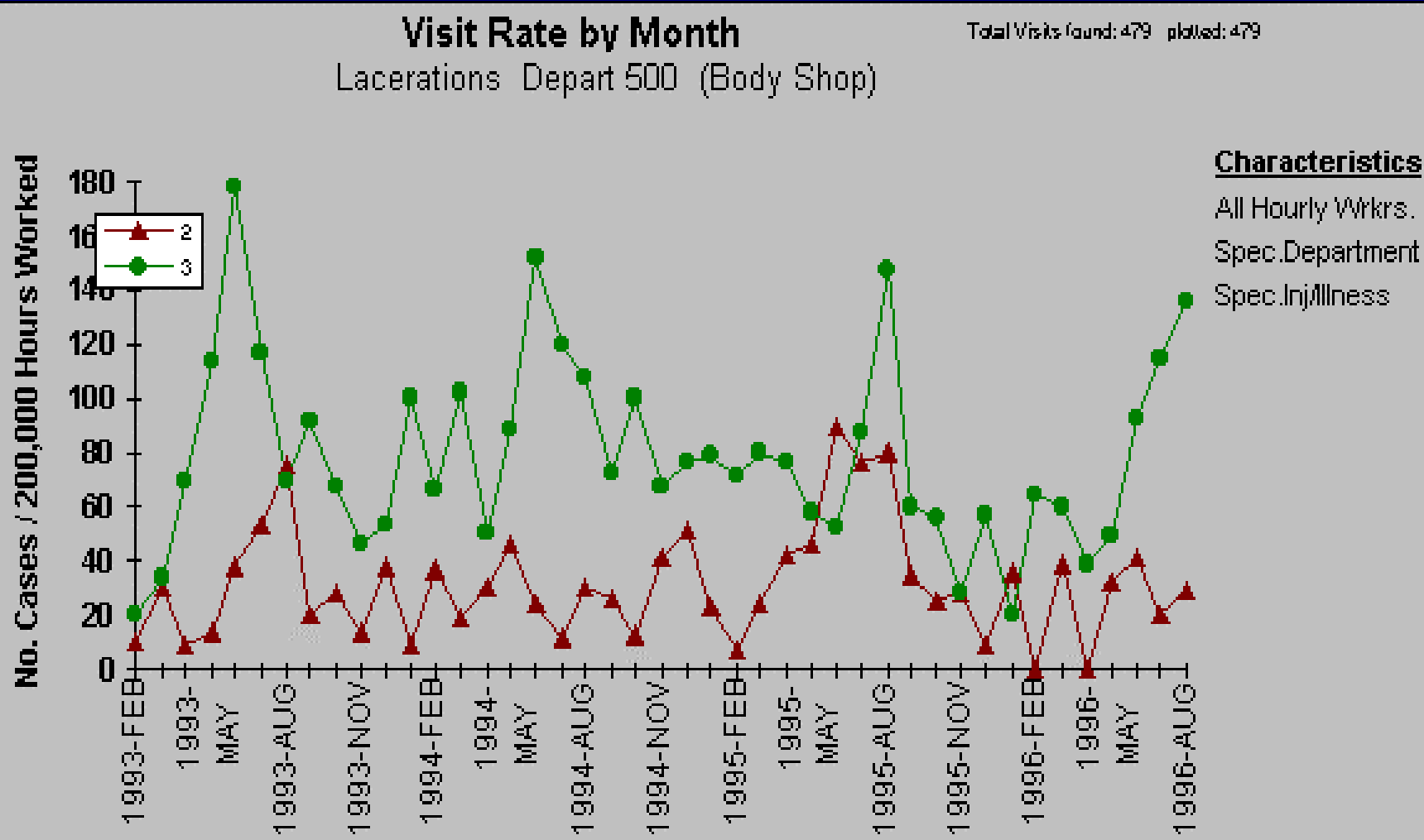
Plant Location: PLANT A

Reporting Period: from 2/7/93 to 9/29/96



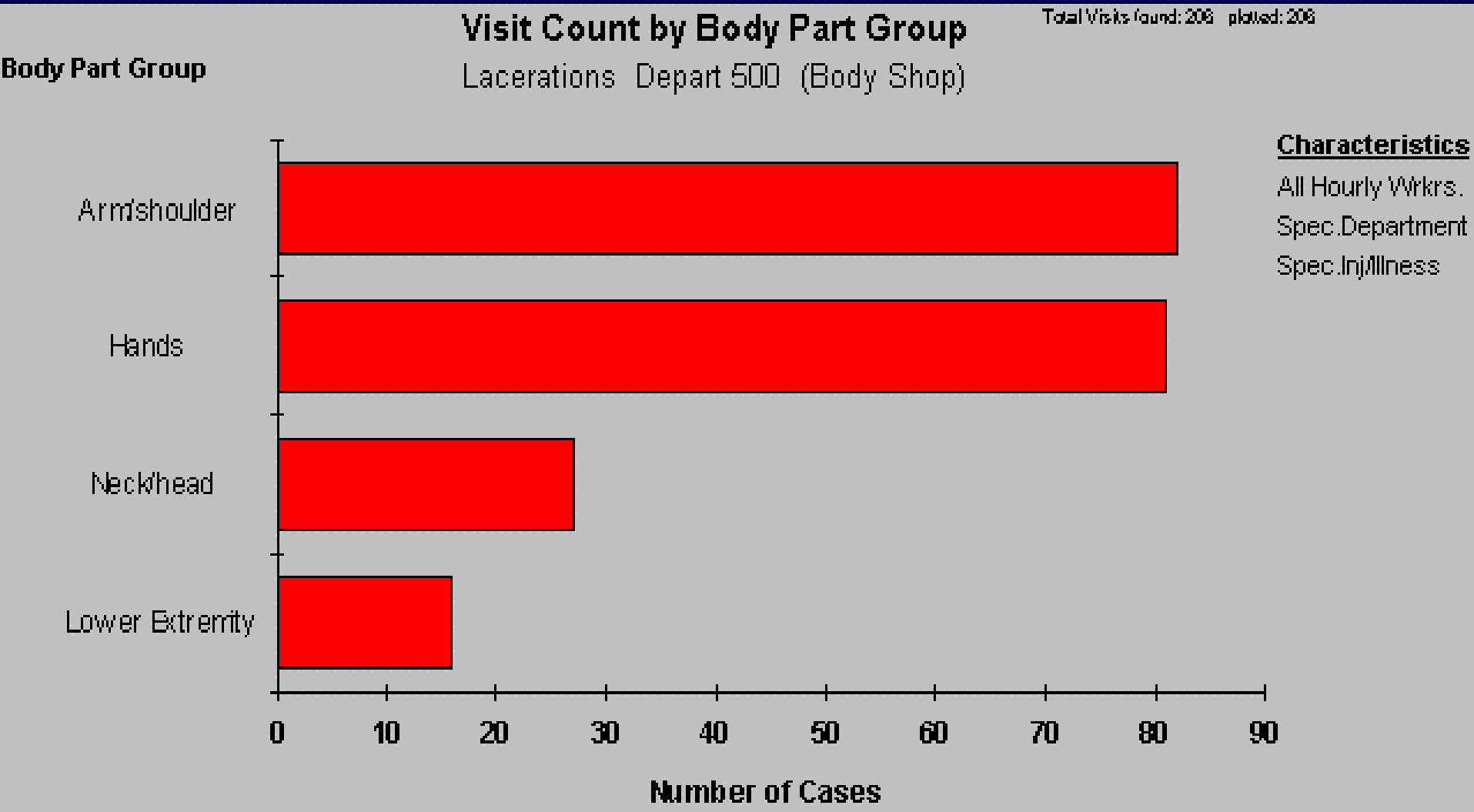
Observational Study Based on Shift Differences

Plant Location: PLANT A
Reporting Period: from 2/7/93 to 8/25/96



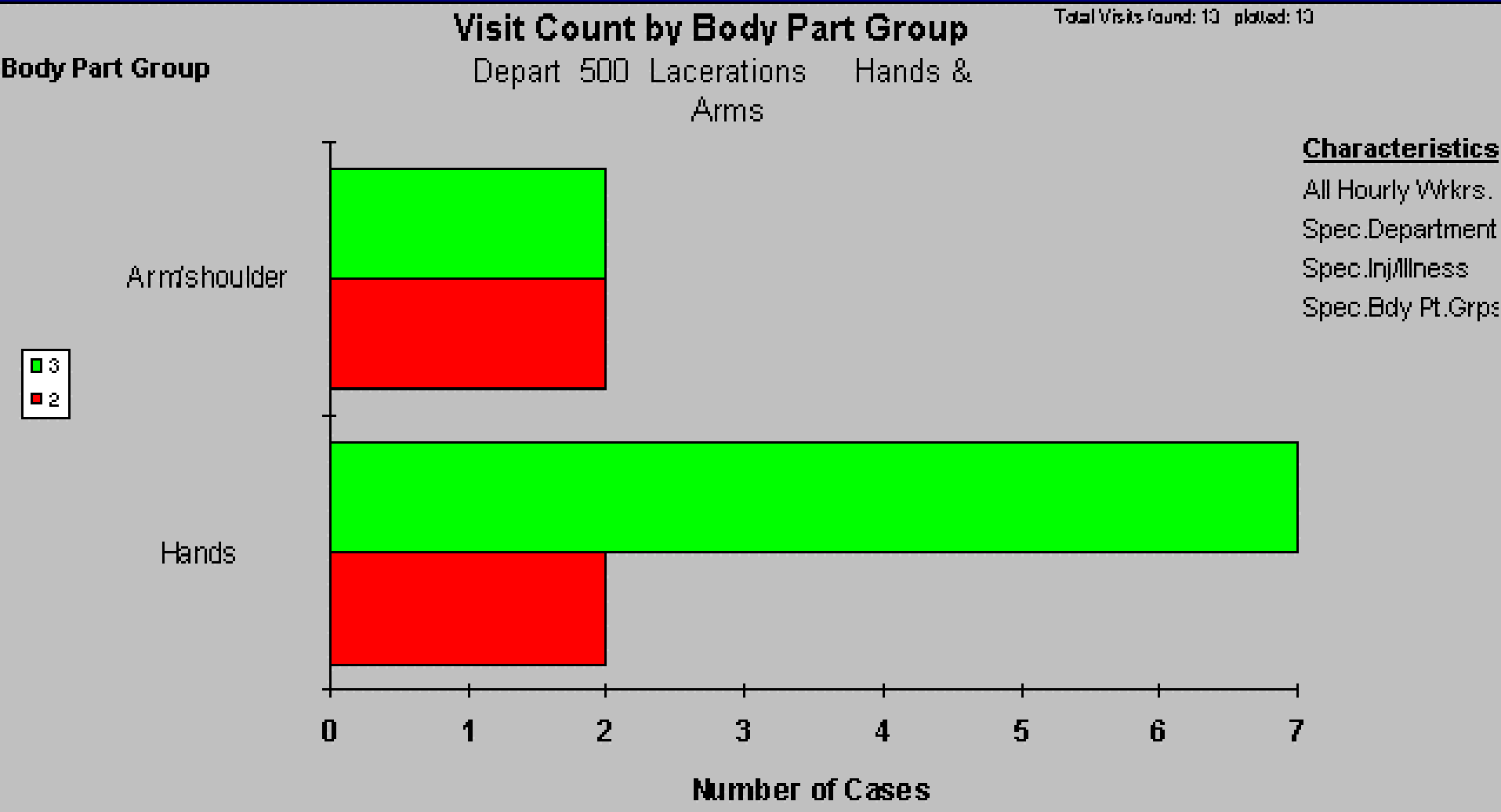
Observational Study Based on Shift Differences

Plant Location: PLANT A
Reporting Period: from 1/8/95 to 8/25/96



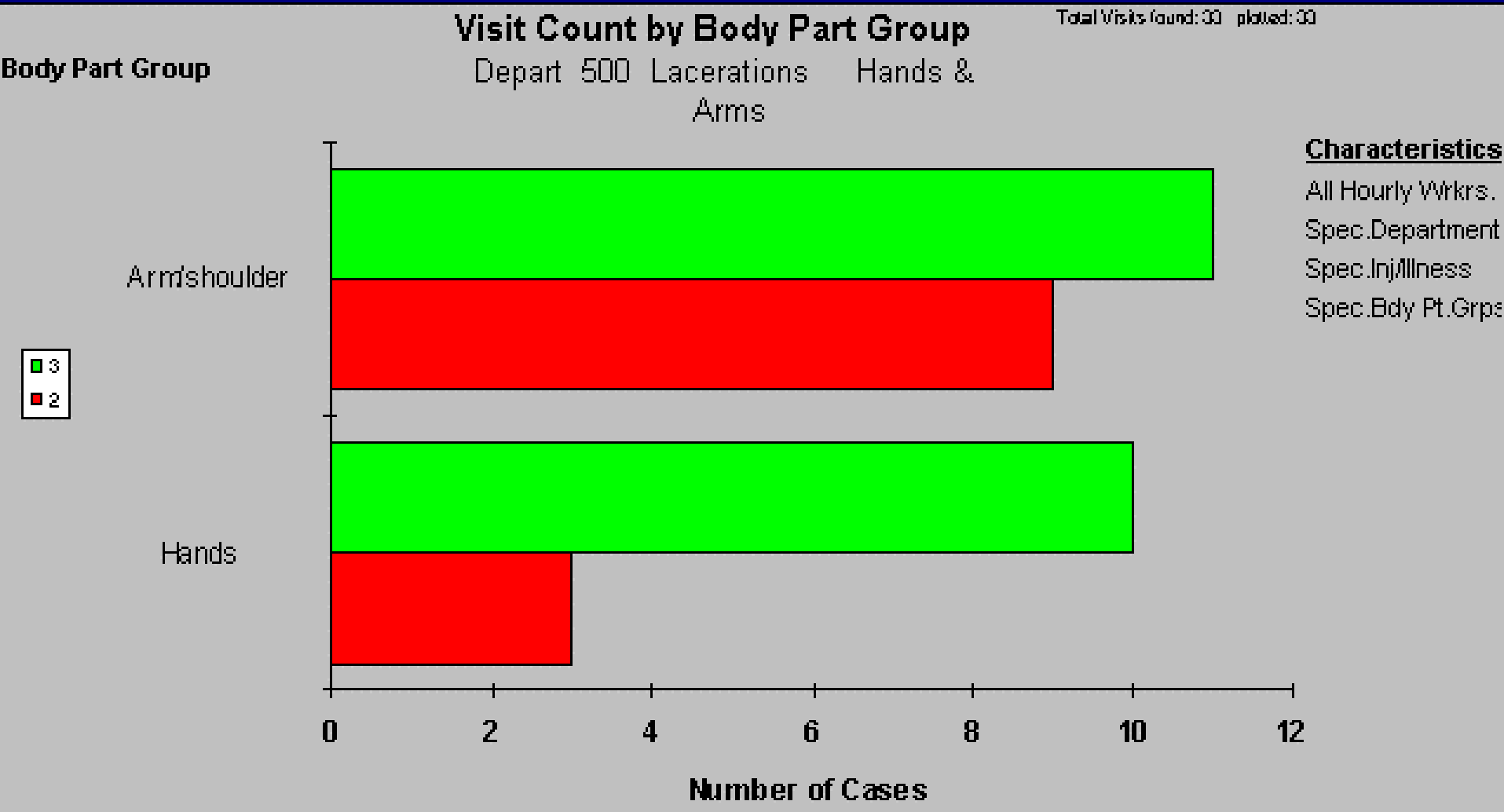
Shift Differences: Winter Months

Plant Location: PLANT A
Reporting Period: from 11/5/95 to 2/25/96



Shift Differences: Summer Months

Plant Location: PLANT A
Reporting Period: from 6/23/96 to 9/29/96



Clusters of Serious Events Can Be Missed, If Too Rare

- Lost Time Case Rate for Engine / Transmission Division Showed an Increasing Trend
- No Obvious Reason Apparent from Safety Reviews and Reports
- Detailed Analysis Identifies Two Emerging Clusters of Serious Rare Event Injury Types

Unexplained Increase in Lost Time Case Rate for Engine and Transmission Plants

Methods

➔ Injury / Illness Cases Assembled for All 10 Engine and Transmission Plants

- February 2000 – September 2000 (8 months)
- June 1999 – January 2000 (8 Months)

➔ Distribution of Cases by Diagnosis Compared

Pedestrian/PMHV Encounters

January Through December 2000

Diagnosis	Reference Period	Most Recent Period	
Sprains/Stains	70	80	(+ 14%)
Contusion	26	35	(+ 35%)
Fracture	23	24	(+ 4%)
Foreign Body	1	13	(+ 1200%)
Laceration	9	13	(+ 44%)
Amputation*	0	7	(+ 700%)

* Three in a single plant

Response Based on Small Numbers Misses A Large Part of the Target

- Attention Focuses on Forklift - Pedestrian Encounters After Fatality in Plant in Germany
- Intervention Focuses on Preventing Forklift - Pedestrian Encounters in Aisle Ways **(Circumstances of Index Case)**
- Company-wide Intervention Undertaken
- Intervention Expanded to Additional Situations Following Review of Surveillance Data

Patterns of PMHV Pedestrian Encounters via Electronic Medical Record System and HDA

Methods

- Free Text Searches on HDA Medical Narratives "How Did This Incident Happen?"

- Search Criteria: Examples

Primary: "forklift" or "tow motor" or "Hi Lo" or "Raymond"

and

Secondary: "walking" or "hit" or "aisle" or "struck"

Pedestrian/PMHV Encounters

January Through December 2000

	Primary Hits	Secondary Hits	Total All Incidents
Number of FTOVs (Injury Events)	115	124	239
Number of Days Away	551	511	1,062
Wage/Fringe @ $386/Day	$212,686	$197,246	$409,932
Medical Costs (Work Comp only)	$170,197	$40,448	$210,645
Total Costs	$382,883	$237,694	$620,577

Conclusions

- Simple Reviews of Daily or Weekly Reports ….
  - ➔**Usually Miss Emerging Injury Trends**
  - ➔**Often Leads to Instant Solutions That Miss the Real Target or Underlying Risk Factors**
- Safety Practitioners Must Look for Shifts In Injury Patterns To Identify Intervention Targets
  - ➔**Compare Current Month With Previous Months To Compare Diagnosis and Other Parameters**
  - ➔**Compare Across Shifts or Between Similar Plants**
- Descriptive Statistics Usually Tell the Story